INSTALLATION AND MAINTENANCE MANUAL
FOR SEA TEL MODEL
COASTAL 14E SATELLITE TV RECEIVE-ONLY ANTENNA

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COBHAM Antennas

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1. Installation

Installation of your Coastal Series Antenna system must be accomplished by or under the supervision of an authorized Sea Tel dealer for the Sea Tel Limited Warranty to be valid and in force. Good planning of the installation will provide the best results. Below is some guidance on issues that are important to consider when planning the installation.

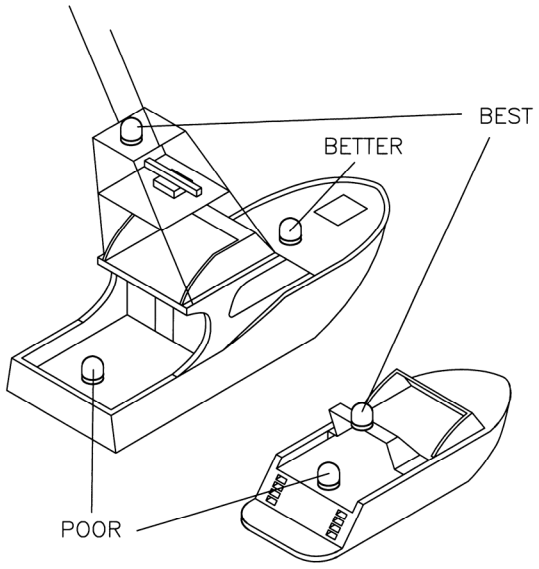
Planning is the key to a good installation. Read the installation information below thoroughly before beginning the actual installation. Then review your plan to adjust for any details that may have been overlooked.

A full scale Installation Template (drawing 126355) has been provided to locate the cutout areas and mounting holes for the antenna radome and for the antenna control panel. The radome template section of the drawing includes the outer perimeter of the radome base so you can insure that the radome will fit in the area chosen.

1.1. Site Selection and Cable Routing Path

The best mounting location for the antenna radome assembly is where:

1. The antenna has a clear line-of-sight view to as much of the sky as is practical. Choose a location where masts or other structures do not block the satellite signal from the dish as the boat turns.
2. The antenna is at least 5 feet away from other transmitting antennas (HF, VHF and radar) that may generate signals that may interfere with the Coastal Series antenna. The further away the Coastal antenna is from these other antennas, the less impact their operation will have on it.
3. The antenna radome assembly should be rigidly mounted to the boat. If necessary, reinforce the mounting area to assure that it does not flex due to the boat motion or vibration.



Possible Antenna Radome Assembly mounting locations

Choosing the best mounting location on smaller boats, where there are fewer possible locations to choose from, is frequently a compromise. The Figure shown to the right is provided to make some location comparisons. The "poor" location is poor because over half of the antenna's viewable sky is blocked by the overhang above it. The "better" location has less blockage, but the upper deck and the mast will cause some blockage when the antenna is at lower elevations. The "best" location has no blockage from raised platforms, mast or the body of the radar.

The Antenna Control Panel (ACP) should be mounted in a convenient location close to the satellite receiver and TV, so that the TV screen may be viewed while the antenna is being operated, it also should be mounted near the satellite receiver and television.

The ACP and the satellite receiver should be mounted near each other which is connected to each other with a supplied 6 foot RF receiver cable, If enclosed in a cabinet or panel, assure that there is adequate airflow to prevent from over-heating and provide forced airflow if needed.

1.2. Coastal 14E System Inventory

Please inventory the contents of the box. It should contain all items listed in the Coastal 14E Packing List Document number 127247 found in the back of this manual.

1.3. Required Tools

The following tools will be required to install the Coastal 14:

1. Masking tape
2. Center punch
3. Hammer
4. Electric Drill
5. 5/16" (8mm) Drill Bit
6. 1" hole saw
7. Small hand or electric saber saw
8. 7/16" Socket Wrench or Nut Driver
9. 7/16" Open-end Wrench
10. 1/8" straight blade screwdriver
11. #2 Phillips Head screwdriver

1.4. Prepare the Antenna Radome mounting location

1. Lay the Installation Template (drawing 126355) on the mounting surface location that you have chosen to mount the radome on.
2. Align the radome "bow" mark on the template to be parallel to the bow of the boat. By default the orientation of the "Sea Tel" logo is oriented towards BOW. Adjust the position of the "Bow" marker on template to orient the LOGO where you want it. When you are satisfied with the position, tape the template in place.
3. Using the center punch and hammer, mark the locations of the four radome mounting holes and the cable passage. Remove the template drawing.
4. Drill the four radome mounting holes using the 5/16" drill bit and the cable passage hole using the 1" hole saw.

1.5. Prepare the Antenna Control Panel mounting location

1. Lay the Installation Template (drawing 126355) on the mounting surface location that you have chosen to mount the Antenna Control Panel in.
2. Adjust the position of the template to center the Antenna Control Panel cutout portion of the drawing where you want it. When you are satisfied with the position tape the template in place.
3. Using the center punch and hammer, mark the locations of the four mounting holes and the four corners of the cutout area. Remove the template drawing.
4. Mark the perimeter of the cutout area. Drill a hole inside the perimeter of the cutout area to enable you to cut the area out with the saw (the 1" hole saw might be used for this).
5. Cut the area out.

1.6. Prepare the Satellite Receiver and Television mounting locations

Prepare the mounting locations for the satellite receiver and television set (or monitor and stereo sound system).

1.7. Running the Cables

1.7.1. Antenna Cable

Route the "F" connector end of the antenna cable down from the radome mounting location through the boat to the antenna control panel location.

Adjust the cable routing so that about 12 inches (30.5cm) of cable extends beyond the radome mounting surface and about 4 inches (10cm) of cable extending out of the antenna control panel mounting surface.

1.7.2. Receiver Cable

Route the receiver cable from the antenna control panel location to the satellite receiver. Leave about 4 inches (10cm) of cable extending out of the antenna control panel mounting surface.

1.7.3. DC Power Cable

Route the DC Power Cable from the antenna control panel location to the +12-24 Volt DC Power source. Leave about 4 inches (10cm) of cable extending out of the antenna control panel mounting surface.

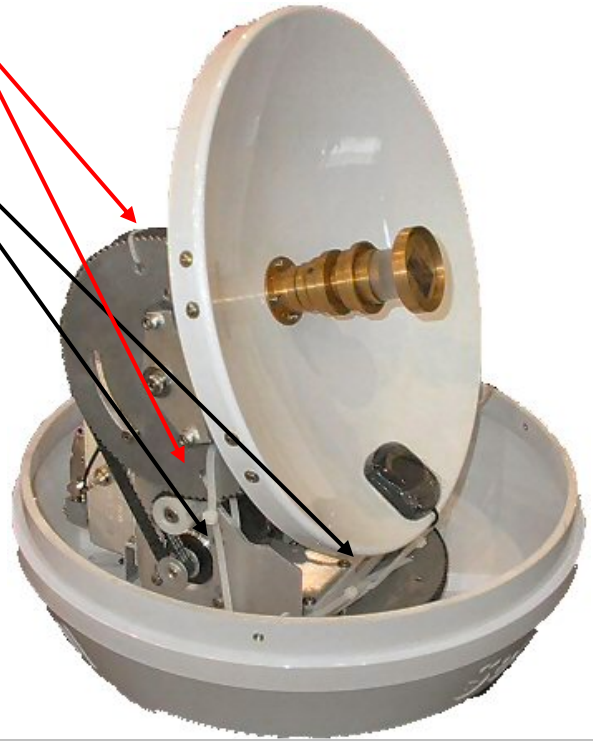
1.8. Install the Antenna Radome

Refer to the Installation Arrangement drawing.

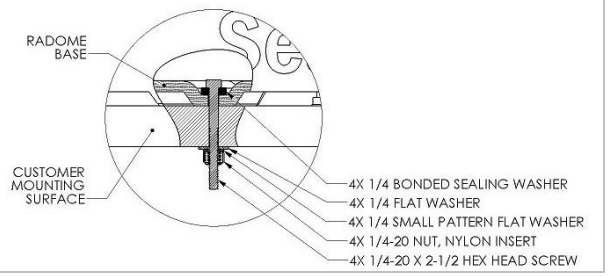
1. Open the Radome Installation Hardware Kit.	

2. Remove the radome top by removing the three screws that thread into the radome base.
3. Set the radome top aside in a safe location until you are ready to close the radome.

4. ***Using caution as to not the Cut the two Tie wraps that attach elevation belt to Pulley, cut the shipping tie-wraps to allow free movement of the antenna mechanism.

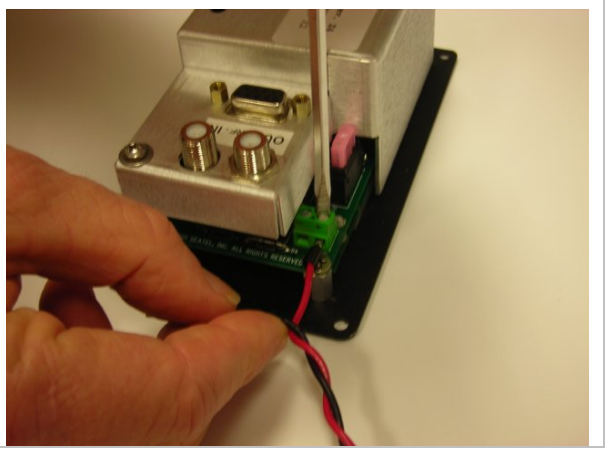


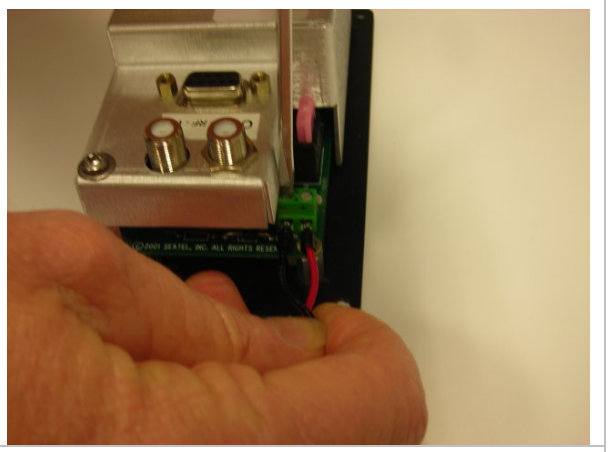
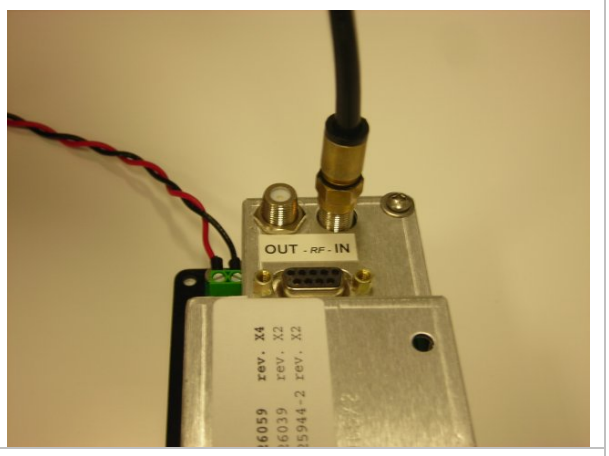
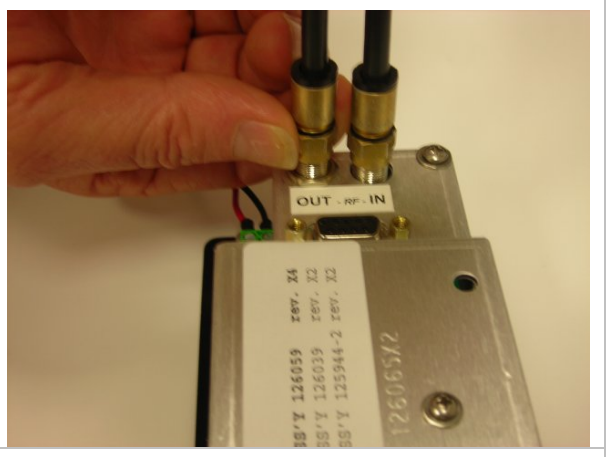
5. Thread a ¼-20 bolt through a bonded washer (neoprene side down) and through one of the threaded inserts in the base of the radome. Install the other three bolts & bonded washers in the same way.

6. Tighten all four of the mounting bolts	
7. Lift the base of the radome up and connect the antenna cable to the base of the antenna. 8. While being careful not to pinch or kink the antenna cable, set the radome base mounting bolts into the mounting holes.	
9. From the underside of the mounting surface, install a ¼" flat washer, a small pattern washer and a nylon lock nut on each of the mounting bolts. 10. Tighten all four of the nuts. 11. Re-install the radome top.	

1.9. Install the Antenna Control Panel

Refer to the Installation Arrangement drawing.

1. Assure that the DC Power Cable is not connected to the DC Supply. 2. At the antenna control panel, connect the red wire to the + (plus) terminal on the green screw terminal.	

3. Connect the black wire to the - (minus) terminal on the green screw terminal.	
4. Connect the antenna cable to the IN connector of the antenna control panel. This IN connection supplies 30VDC operating voltage and antenna control signals to the antenna and receives satellite signal from the antenna. ***CAUTION:* Connecting the satellite receiver to the IN connector may damage the satellite receiver.**	
5. Connect the receiver cable to the OUT connector of the antenna control panel. ***CAUTION:* Connecting the satellite receiver to the IN connector may damage the satellite receiver.**	
6. Install the antenna control panel into the cutout and secure with self tapping screws 7. At the DC Power Supply, connect the red wire to the plus voltage output terminal. Connect the black wire to the minus (or ground) output terminal.	

1.10. Install the Satellite Receiver and Television Set

Connect the receiver cable from the antenna control panel's RF "Out" Port to the satellite input connection on the rear of your receiver.

Connect desired configuration of audio/video cables between the satellite receiver and television set (or monitor & stereo equipment).

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2. Setup

2.1. System Checkout

1. Press the POWER key on the antenna control panel. The display should report model and software versions, verifying the DC power connection between the antenna control panel and the antenna pedestal assembly.
2. Turn power ON to the satellite receiver and the TV monitor. The television may now be displaying "searching for satellite signal" verifying proper video connections between the receiver and the monitor.

2.2. Initial Factory Setup

Your system comes from the factory preprogrammed for the following satellites:

SATA	HtBd13	Hot Bird @ 13E
SATB	Astr19	Astra1 @ 19E
SATC	Astr28	Astra2 @ 28E

If you want to change this programming refer to the paragraphs below.

2.3. Changing the Initial Factory Setup

If you want to change the order of the initial setup of satellites, remove unused satellites or add/replace with new satellites then refer to the paragraphs below.

Press and hold **SAVE** + ▼ for 6 seconds to access SETUP Mode. "Setup Mode" will be displayed on the first line of the display while the panel is in SETUP Mode.

Use the ▼ & ▲ arrow keys to scroll down & up through the Setup parameters listed below.

NOTE: *You will save individual set-up parameter settings as you modify them in the procedure below (quick presses of the SAVE key). These will only save the settings until POWER is cycled to the antenna.*

When you are finished making all of your desired changes, you ***MUST press and hold the SAVE key for six seconds, "Settings Saved" will be displayed.*** Saving writes all of the parameters, including the ones you have changed, to memory in the PCU so they will be available after POWER has been cycled to the antenna.

2.3.1. Adjusting Panel Brightness

1. Press the NEXT key to SELECT this parameter for adjustment.
2. Once selected, press ▲& ▼ arrow keys to adjust the backlighting illumination of the display to desired level. Each keypress steps the value 8 counts.
3. Then press the SAVE key to save the adjusted setting.
4. Press the ▼ arrow key to go to the next parameter.

******For antenna's connected to a 24Vdc Power Supply, a Panel Brightness value over 96 is not recommended******

2.3.2. Setting Auto Threshold for Proper Tracking

Auto Threshold needs to be set to about 1/3rd of the difference in AGC between noise floor (OFF satellite) signal level and peak (ON satellite) signal level. The most common value for the Coastal 14 is 60.

1. Press the **NEXT** key to SELECT this parameter for adjustment.
2. Once selected, press ▼ & ▲ arrow keys to increment/decrement the indicated digit to the desired value.
3. Press **NEXT** to move the adjustment cursor to the next character to be edited. Press ▼ & ▲ arrow keys to increment/decrement the indicated character to the desired value.
4. Repeat the previous step until all desired character positions have been edited.
5. Then press the SAVE key once to save this setting.
6. Press the ▼ arrow key to go to the next parameter.

2.3.3. SATA - First Satellite Parameters

Access all of the SATA individual parameters via a sub menu. Choices are:

2.3.3.1. PRESET

This choice presets all of the other sub-menu parameters to factory defaults for the satellite you choose to set this SAT to.

1. Press the **NEXT** key to SELECT this parameter for adjustment.
2. Once selected, press ▼ & ▲ arrow keys to scroll through a list of choices which this SAT can be preset to. This list may change in future software revisions. The current choices are:

Empty	Blanks/zeroes all parameters for this satellite, so switching satellites (NEXT) will skip over the satellites you don't want (*if you only use ONE satellite, you should preset all of the other SAT selections to be empty/blank*).
HtBd13	Hot Bird @ 13E
Astr19	Astra1 @ 19E
Astr28	Astra2 @ 28E
Galxy3	Galaxy 3C @ 95W

3. When the desired choice is displayed, press the SAVE key to save the parameters for this SAT. This saves the ***DEFAULT*** Satellite Name, Satellite Longitude, Lo Band and Hi Band Horizontal frequencies, Lo Band and Hi Band Vertical frequencies, Lo band and Hi Band Baud rates, Lo Band and Hi Band FEC rates, and the Lo Band and Hi Band Network ID's.
4. If you want to edit any of the ***default*** values that are loaded with preset, press the ▼ arrow key to go to the next sub-menu parameter.
5. If you do not want to edit any other sub-menu parameters, press **SAVE** again to exit the sub-menu and return to the SAT main menu display. From there you can press the ▼ arrow key to go to next SAT numeric menu choice or to the Factory Settings menu choice.

2.3.3.2. NAME

Enter or edit the 6 character ***Name*** you want to use for this saved satellite.

6. Press the NEXT key to SELECT this sub-menu parameter for adjustment.

7. A cursor will appear under the leftmost character. Press ▼ & ▲ arrow keys to increment/decrement this character.
8. Press the NEXT key to move the cursor to the next character to the right. Press ▼ & ▲ arrow keys to increment/decrement this character.
9. Continue editing characters (6 max) until all desired characters have been set to create the NAME you want to use for this satellite selection. Press the SAVE key to save the NAME parameter for this SAT.
10. If you want to edit any of the other ***default*** values that are loaded with preset, press the ▼ arrow key to go to the next sub-menu parameter.
11. If you do not want to edit any other sub-menu parameters, press SAVE again to exit the sub-menu and return to the SAT main menu display. From there you can press the ▼ arrow key to go to next SAT numeric menu choice or to the Factory Settings menu choice.

2.3.3.3. LON

Enter or edit the ***Longitude*** position of this satellite. Range of acceptable values are 0-180, East or West (E or W).

12. Press the NEXT key to SELECT this sub-menu parameter for adjustment.
13. A cursor will appear under the East/West hemisphere character. Press ▼ & ▲arrow keys to set this character to the desired hemisphere (E/W).
14. Press the NEXT key to move the cursor to the number digit to the right. Press ▼ & ▲ arrow keys to increment/decrement this digit.
15. Continue editing until all 3 digits have been set to the Longitude (0-180) position of this satellite selection. Press the SAVE key to save the LON parameter for this SAT.
16. If you want to edit any of the other ***default*** values that are loaded with preset, press the ▼ arrow key to go to the next sub-menu parameter.
17. If you do not want to edit any other sub-menu parameters, press SAVE again to exit the sub-menu and return to the SAT main menu display. From there you can press the ▼ arrow key to go to next SAT numeric menu choice or to the Factory Settings menu choice.

2.3.3.4. Lo Band Vertical Frequency

Enter or edit the ***Ku Lo Band Vertical Frequency*** (in MHz) for the receiver to use to track this satellite. Range of acceptable frequency input is 950-2150 MHz.

18. Press the **NEXT** key to SELECT this sub-menu parameter for adjustment.
19. A cursor will appear under the rightmost digit. Press ▼ & ▲ arrow keys to increment/decrement this digit.
20. Press the **NEXT** key to move the cursor to the digit to the left. Press ▼ & ▲ arrow keys to increment/decrement this digit.
21. Continue editing until all 4 digits have been set to the desired tracking Frequency for this satellite selection. Press the SAVE key to save the FREQ parameter for this SAT.
22. If you want to edit any of the other ***default*** values that are loaded with preset, press the ▼ arrow key to go to the next sub-menu parameter.
23. If you do not want to edit any other sub-menu parameters, press SAVE again to exit the sub-menu and return to the SAT main menu display. From there you

can press the ▼ arrow key to go to next SAT numeric menu choice or to the Factory Settings menu choice.

2.3.3.5. Hi Band Vertical Frequency

Enter or edit the ***Ku Hi Band Vertical Frequency*** (in MHz) for the receiver to use to track this satellite. Range of acceptable frequency input is 950-2150 MHz.

1. Press the **NEXT** key to SELECT this sub-menu parameter for adjustment.
2. A cursor will appear under the rightmost digit. Press ▼ & ▲ arrow keys to increment/decrement this digit.
3. Press the **NEXT** key to move the cursor to the digit to the left. Press ▼ & ▲ arrow keys to increment/decrement this digit.
4. Continue editing until all 4 digits have been set to the desired tracking Frequency for this satellite selection. Press the SAVE key to save the FREQ parameter for this SAT.
5. If you want to edit any of the other ***default*** values that are loaded with preset, press the ▼ arrow key to go to the next sub-menu parameter.
6. If you do not want to edit any other sub-menu parameters, press SAVE again to exit the sub-menu and return to the SAT main menu display. From there you can press the ▼ arrow key to go to next SAT numeric menu choice or to the Factory Settings menu choice.

2.3.3.6. Lo Band Horizontal Frequency

Enter or edit the ***Ku Lo Band Horizontal Frequency*** (in MHz) for the receiver to use to track this satellite. Range of acceptable frequency input is 950-2150 MHz.

7. Press the **NEXT** key to SELECT this sub-menu parameter for adjustment.
8. A cursor will appear under the rightmost digit. Press ▼ & ▲ arrow keys to increment/decrement this digit.
9. Press the **NEXT** key to move the cursor to the digit to the left. Press ▼ & ▲ arrow keys to increment/decrement this digit.
10. Continue editing until all 4 digits have been set to the desired tracking Frequency for this satellite selection. Press the SAVE key to save the FREQ parameter for this SAT.
11. If you want to edit any of the other ***default*** values that are loaded with preset, press the ▼ arrow key to go to the next sub-menu parameter.
12. If you do not want to edit any other sub-menu parameters, press SAVE again to exit the sub-menu and return to the SAT main menu display. From there you can press the ▼ arrow key to go to next SAT numeric menu choice or to the Factory Settings menu choice.

2.3.3.7. Hi Band Horizontal Frequency

Enter or edit the ***Ku Hi Band Horizontal Frequency*** (in MHz) for the receiver to use to track this satellite. Range of acceptable frequency input is 950-2150 MHz.

13. Press the **NEXT** key to SELECT this sub-menu parameter for adjustment.
14. A cursor will appear under the rightmost digit. Press ▼ & ▲ arrow keys to increment/decrement this digit.

15. Press the **NEXT** key to move the cursor to the digit to the left. Press ▼ & ▲ arrow keys to increment/decrement this digit.
16. Continue editing until all 4 digits have been set to the desired tracking Frequency for this satellite selection. Press the SAVE key to save the FREQ parameter for this SAT.
17. If you want to edit any of the other ***default*** values that are loaded with preset, press the ▼ arrow key to go to the next sub-menu parameter.
18. If you do not want to edit any other sub-menu parameters, press SAVE again to exit the sub-menu and return to the SAT main menu display. From there you can press the ▼ arrow key to go to next SAT numeric menu choice or to the Factory Settings menu choice.

2.3.3.8. Lo Band BAUD Rate

Enter or edit the ***Lo Band Baud rate*** for the receiver to use for this satellite. Range of acceptable input is 5000-30000 symbols per second.

19. Press the NEXT key to SELECT this sub-menu parameter for adjustment.
20. A cursor will appear under the rightmost digit. Press ▼ & ▲ arrow keys to increment/decrement this digit.
21. Press the NEXT key to move the cursor to the digit to the left. Press ▼ & ▲ arrow keys to increment/decrement this digit.
22. Continue editing until all 5 digits have been set to the desired Baud rate for this satellite selection. Press the SAVE key to save the BAUD parameter for this SAT.
23. If you want to edit any of the other ***default*** values that are loaded with preset, press the ▼ arrow key to go to the next sub-menu parameter.
24. If you do not want to edit any other sub-menu parameters, press SAVE again to exit the sub-menu and return to the SAT main menu display. From there you can press the ▼ arrow key to go to next SAT numeric menu choice or to the Factory Settings menu choice.

2.3.3.9. Hi Band BAUD Rate

Enter or edit the ***Hi Band Baud rate*** for the receiver to use for this satellite. Range of acceptable input is 5000-30000 symbols per second.

25. Press the NEXT key to SELECT this sub-menu parameter for adjustment.
26. A cursor will appear under the rightmost digit. Press ▼ & ▲ arrow keys to increment/decrement this digit.
27. Press the NEXT key to move the cursor to the digit to the left. Press ▼ & ▲ arrow keys to increment/decrement this digit.
28. Continue editing until all 5 digits have been set to the desired Baud rate for this satellite selection. Press the SAVE key to save the BAUD parameter for this SAT.
29. If you want to edit any of the other ***default*** values that are loaded with preset, press the ▼ arrow key to go to the next sub-menu parameter.
30. If you do not want to edit any other sub-menu parameters, press SAVE again to exit the sub-menu and return to the SAT main menu display. From there you can press the ▼ arrow key to go to next SAT numeric menu choice or to the Factory Settings menu choice.

2.3.3.10. Lo Band FEC Rate

Enter or edit the ***Lo Band Forward Error Correction rate*** for the receiver to use for this satellite.

This choice presets all of the other sub-menu parameters to factory defaults for the satellite you choose to set this SAT to.

31. Press the NEXT key to SELECT this parameter for adjustment.
32. Once selected, press ▼ & ▲ arrow keys to scroll through a list of choices which this SAT can be preset to. This list may change in future software revisions. The current choices are:

AUTO	Automatically scans through all the standard DVB & DSS FEC rates.
1/2	
2/3	
3/4	
5/6	
6/7	
7/8	
AUTO*	Automatically scans through all the available forced ***** (star'ed) FEC rates. If the satellite does not generate an NID but does have a unique combination of FREQ, BAUD and FEC lock, select the appropriate *FEC** choice from this list. The system will then generate its own unique forced NID to represent the desired satellite. You will need to enter this pseudo NID in the *NID* setting below.
1/2*	
2/3*	
3/4*	
5/6*	
6/7*	
7/8*	

33. When the desired choice is displayed, press the SAVE key to save the parameters for this SAT. This saves the FEC rate to use for this SAT.
34. If you want to edit any of the ***default*** values that are loaded with preset, press the ▼arrow key to go to the next sub-menu parameter.
35. If you do not want to edit any other sub-menu parameters, press SAVE again to exit the sub-menu and return to the SAT main menu display. From there you can press the ▼ arrow key to go to next SAT numeric menu choice or to the Factory Settings menu choice.

2.3.3.11. Hi Band FEC Rate

Enter or edit the ***Hi Band Forward Error Correction rate*** for the receiver to use for this satellite.

This choice presets all of the other sub-menu parameters to factory defaults for the satellite you choose to set this SAT to.

36. Press the NEXT key to SELECT this parameter for adjustment.

37. Once selected, press ▼ & ▲ arrow keys to scroll through a list of choices which this SAT can be preset to. This list may change in future software revisions. The current choices are:

AUTO	Automatically scans through all the standard DVB & DSS FEC rates.
1/2	
2/3	
3/4	
5/6	
6/7	
7/8	
AUTO*	Automatically scans through all the available forced ***** (star'ed) FEC rates. If the satellite does not generate an NID but does have a unique combination of FREQ, BAUD and FEC lock, select the appropriate *FEC** choice from this list. The system will then generate its own unique forced NID to represent the desired satellite. You will need to enter this pseudo NID in the *NID* setting below.
1/2*	
2/3*	
3/4*	
5/6*	
6/7*	
7/8*	

38. When the desired choice is displayed, press the SAVE key to save the parameters for this SAT. This saves the FEC rate to use for this SAT.
39. If you want to edit any of the ***default*** values that are loaded with preset, press the ▼arrow key to go to the next sub-menu parameter.
40. If you do not want to edit any other sub-menu parameters, press SAVE again to exit the sub-menu and return to the SAT main menu display. From there you can press the ▼ arrow key to go to next SAT numeric menu choice or to the Factory Settings menu choice.

2.3.3.12. Lo Band NID

Enter or edit the ***Lo Band Network ID*** 4 digit HEX value for the receiver used to Identify & track this satellite.

41. Press the **NEXT** key to SELECT this sub-menu parameter for adjustment.
42. A cursor will appear under the rightmost digit. Press ▼ & ▲ arrow keys to increment/decrement this digit (only valid HEX values 0-F will be displayed).
43. Press the **NEXT** key to move the cursor to the digit to the left. Press ▼ & ▲ arrow keys to increment/decrement this digit.
44. Continue editing until all 4 digits have been set to the desired NID for this satellite selection. Press the **SAVE** key to save the NID parameter for this SAT.
45. If you want to edit any of the other ***default*** values that are loaded with preset, press the ▼arrow key to go to the next sub-menu parameter.

46. If you do not want to edit any other sub-menu parameters, press **SAVE** again to exit the sub-menu and return to the SAT main menu display. From there you can press the ▼ arrow key to go to next SAT numeric menu choice or to the Factory Settings menu choice.

2.3.3.13. Hi Band NID

Enter or edit the ***Hi Band Network ID*** 4 digit HEX value for the receiver used to Identify & track this satellite.

47. Press the **NEXT** key to SELECT this sub-menu parameter for adjustment.
48. A cursor will appear under the rightmost digit. Press ▼ & ▲ arrow keys to increment/decrement this digit (only valid HEX values 0-F will be displayed).
49. Press the **NEXT** key to move the cursor to the digit to the left. Press ▼ & ▲ arrow keys to increment/decrement this digit.
50. Continue editing until all 4 digits have been set to the desired NID for this satellite selection. Press the **SAVE** key to save the NID parameter for this SAT.
51. If you want to edit any of the other ***default*** values that are loaded with preset, press the ▼arrow key to go to the next sub-menu parameter.
52. If you do not want to edit any other sub-menu parameters, press **SAVE** again to exit the sub-menu and return to the SAT main menu display. From there you can press the ▼ arrow key to go to next SAT numeric menu choice or to the Factory Settings menu choice.

53.

2.3.4. SATB - Second Satellite Parameters

Access all of the SATB individual parameters via a sub menu. If a second SAVED satellite if not needed, preset SATB to "Empty" so when the NEXT key is pressed the antenna will not search for any unwanted satellite(s)

All of the SATB parameters are set exactly the same way that the SATA parameters were set, but would be set to different choices. Refer to the parameter setting information in the SATA – First Satellite Parameters paragraphs to set PRESET, NAME, LON, Lo Band and Hi Band VERT freq's, HORZ freq's, BAUD's, FEC's, and NID's for the second satellite you wish to use periodically.

2.3.5. SATC - Third Satellite Parameters

Access all of the SATC individual parameters via a sub menu. If a second SAVED satellite if not needed, preset SATC to "Empty" so when the NEXT key is pressed the antenna will not search for any unwanted satellite(s).

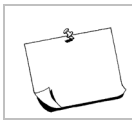
All of the SATC parameters are set exactly the same way that the SATA parameters were set, but would be set to different choices. Refer to the parameter setting information in the SATA – First Satellite Parameters paragraphs to set PRESET, NAME, LON, Lo Band and Hi Band VERT freq's, HORZ freq's, BAUD's, FEC's, and NID's for the third satellite you wish to use periodically.

2.3.6. FACTORY SETTINGS

Accessing the Factory Settings parameters should ***ONLY*** be done by a qualified technician from an authorized Sea Tel dealer. The Model Serial Number can be found on the blue and silver label below the reflector, on the blue frame of the pedestal. The parameters are:

2.3.6.1. Serial Number

This parameter sets Serial Number of the Antenna Pedestal into the PCU memory. The serial number starts with 98 followed by 6 digits that are editable. This parameter allows the Serial Number of the Antenna to be displayed on the Display Antenna Control Panel during the initialization process.



NOTE: The Serial Number parameter setting is saved in the PCU, therefore, MUST be set whenever the PCU is changed.

After this parameter has been set correctly, it must be SAVED in the PCU.

1. Press the **NEXT** key to SELECT this sub-menu parameter for adjustment.
2. A cursor will appear under the rightmost digit. Press ▼ & ▲ arrow keys to increment/decrement this digit.
3. Press the **NEXT** key to move the cursor to the digit to the left. Press ▼ & ▲ arrow keys to increment/decrement this digit.
4. Continue editing until all 6 digits have been set to the correct Serial Number of the antenna pedestal that this PCU is mounted on. Press the **SAVE** key to save the Serial Number parameter.
5. Press **SAVE** again to exit the sub-menu and return to the FACTORY SETTINGS main menu display. From there you can press the ▲ arrow key to go UP through the SAT numeric menu choices.

2.3.6.2. MODEL COASTAL ##

The Model Configuration Sub-Menu is a ***Read Only parameter in this Version of Software.***

This parameter sets all of the internal drive, scale factor and limits for the motors, gear ratios and sensors.

2.3.6.3. LAT (Ships Latitude)

This parameter is automatically set by the GPS antenna mounted on the Coastal pedestal inside the radome. The GPS input enables the antenna to quickly & accurately target satellites (SATA – SATC) when you press the NEXT key on the Antenna Control Panel.

1. Press the **NEXT** key to SELECT this sub-menu parameter for adjustment.
2. A cursor will appear under the leftmost digit. Press ▼ & ▲ arrow keys to increment/decrement this digit.
3. Press the **NEXT** key to move the cursor to the next digit to the right. Press▼ & ▲arrow keys to increment/decrement this digit.
4. Press the **NEXT** key to move the cursor to the next character to the right. Press ▼ & ▲ arrow keys to toggle this character between N (North) and S (South).
5. Press the **SAVE** key to save the current ships latitude in the LAT parameter.

2.3.6.4. LON (Ships Longitude)

This parameter is automatically set by the GPS antenna mounted on the Coastal pedestal inside the radome. The GPS input enables the antenna to quickly & accurately target satellites (SATA – SATC) when you press the **NEXT** key on the Antenna Control Panel.

1. Press the **NEXT** key to SELECT this sub-menu parameter for adjustment.
2. A cursor will appear under the leftmost digit. Press ▼ & ▲ arrow keys to increment/decrement this digit.
3. Press the **NEXT** key to move the cursor to the next digit to the right. Press ▼ & ▲ arrow keys to increment/decrement this digit.
4. Press the **NEXT** key to move the cursor to the next digit to the right. Press ▼ & ▲ arrow keys to increment/decrement this digit.
5. Press the **NEXT** key to move the cursor to the next character to the right. Press ▼ & ▲ arrow keys to toggle this character between E (East) and W (West).
6. Press the **SAVE** key to save the current ships longitude in the LON parameter.

2.4. Saving the SETUP Parameters

When you have completed setting the desired parameters above, Press and Hold **SAVE** for 6 seconds to save the changes you have made to the settings and exit SETUP Mode. "Settings Saved" will be displayed.

If you do NOT want to save the changes to NVRAM, Press **SAVE** +▲ to exit SETUP Mode without permanently saving any parameter changes.

NOTE: *You will save individual set-up parameter settings as you modify them in the procedure below (quick presses of the* ***SAVE*** *key). These will only save the settings until POWER is cycled to the antenna.*

When you are finished making all of your desired changes, you ***MUST press and hold the SAVE key for six seconds*** to write the changes you have made to memory ("Settings Saved" will be displayed) in the PCU, so they will be available after POWER has been cycled to the antenna.

3. Maintenance

3.1. Warranty Information

Sea Tel Inc. supports its Coastal Series systems with a warranty program unsurpassed in the industry. These systems are backed by a TWO YEAR full warranty on parts and a ONE YEAR warranty on labor.

What's Covered by the Limited Warranty?

The Sea Tel Coastal Series Limited Warranty is applicable for parts and labor coverage to the complete antenna system, including all above-decks equipment (radome, pedestal, antenna, motors, electronics, wiring, etc.) and the antenna control panel. It does not include television sets, DBS/DTH receivers, multi-switches or other distribution equipment, whether or not supplied by Sea Tel. Televisions, DBS/DTH receivers and accessories are covered by the applicable warranties of the respective manufacturers.

Factory refurbished components used to replace systems parts under this warranty are covered by this same warranty as the original equipment for the balance of the original warranty term, or ninety (90) days from the date of replacement, whichever occurs last. Original Installation of the Coastal Series system must be accomplished by or under the supervision of an authorized Sea Tel dealer for the Sea Tel Limited Warranty to be valid and in force.

Please refer to the complete warranty information included with your system.

3.2. Who to contact for repairs

Should technical assistance be required to repair your system, the first contact should be to the agent/dealer you purchased the equipment from. Please record their contact information below for future reference. Repairs to your Coastal Series system must be accomplished by or under the supervision of an authorized Sea Tel dealer for the Sea Tel Limited Warranty to be valid and in force.

Agent/Dealer: _____

Address: _____

_____

Phone: _____ Fax: _____

Sea Tel can recommend local dealers that can provide service in your local area that can be contacted for assistance. You can contact us directly at either of the locations below;

Sea Tel, Inc.
4030 Nelson Avenue
Concord, CA 94520 USA
Tel: 925-798-7979
Fax: 925-798-7986
Toll Free: 1-888-798-7979
Email: seatel@seatel.com
http://www.seatel.com

Sea Tel Europe
Unit 1 Orion Industrial Centre
Wide Lane Swaythling
Southampton, UK S018 2HJ
Tel: +44 (0)23 80 671155
Fax: +44 (0)23 80 671166
e-mail: europe@seatel.com

3.3. Preventive Maintenance

As needed - Clean the outside surface of the radome with warm soapy water to remove dust, grime and salt residue.

There is no other preventive maintenance required

3.4. Fault Isolation/Trouble-shooting

The following table is provided to help isolate problems in the Coastal Series Antenna system.

Symptom	***Possible Fault***
Antenna tracking but receiver not providing desired programming	1. Incorrect satellite. Press **NEXT** to search for desired satellite 2. Receiver fault. Refer to receiver manual for operation and testing.
Antenna tracking, receiver only gets some desired channels	1. May be in weak area of footprint. 2. Receiver may not be generating correct voltage or tone output. Refer to receiver manual for operation and testing. 3. Receiver may not be passing voltage or tone output. Contact your dealer/agent. 4. LNB assembly failure. Contact your dealer/agent.
Intermittent freeze-framing of picture	1. Check for blockage 2. May be in weak area of footprint. 3. Receiver may not be generating correct voltage or tone output. Refer to receiver manual for operation and testing. 4. Check all coax cables for poor connection 5. Possible receiver failure. Contact your dealer/agent. 6. Possible antenna failure. Contact your dealer/agent.
Antenna does not come on when the ON key is pressed	1. Check +12 VDC input to antenna control panel. 2. Verify that all connections on the rear of the antenna control panel are properly seated. 3. Check the 4A fuse in the rear panel of the antenna control panel 4. Call dealer/agent for further assistance
Antenna doesn't track any satellites (constantly searching)	1. Assure that the satellite receiver is turned ON 2. Check for blockage 3. Assure correct starting elevation 4. May be out of satellite footprint 5. Check all coax cables for poor connection 6. Call dealer/agent for further assistance
Antenna in constant UNWRAP	1. Cycle antenna power OFF/ON to reinitialize the antenna. 2. Call dealer/agent for further assistance

Antenna tracks well at the pier, but loses the satellite when underway	1. Call dealer/agent for further assistance
Antenna does not stay on satellite at pier, or underway	1. Check all coax cables for poor connection 2. Call dealer/agent for further assistance

3.5. Linear Polarization Adjustment

As the polarization is mis-adjusted, the signal level will degrade. If it is mis-adjusted far enough, the signal will be completely lost.

Polarization is adjusted for a desired satellite when the system is initially installed. Subsequently it needs only to be adjusted when changing from one satellite to another, or when the boat has traveled a significant geographic distance. It should NOT need to be re-adjusted if the boat stays in the same location and is operating on the same satellite.

Polarization of your Coastal 14E Series antenna must be accomplished manually. Each time you need to adjust the polarization you will have to take the radome top off, loosen the LNB mounting set screws and rotate the LNB. When you have optimized the polarity, tighten the set screws and put the radome top back on.

Note: The polarization control from the Antenna Control Panel is ***NOT*** possible.

The antenna reports that it is tracking a good signal by displaying a steady (ON) TRACKING LED. If you determine that the satellite signal is not the desired satellite, press the NEXT key to search for the NEXT satellite signal. Continue repeating this procedure until the correct satellite is found. Once the correct satellite has been found, allow the antenna to track for 4-6 minutes to update the satellite position information.

3.5.1. Optimizing the polarization while on the desired satellite

This adjustment should be done while the boat is at the pier and antenna is tracking the desired satellite. When the boat is traveling to a different geographic area the polarization may need to be re-optimized if performance appears to be degrading.

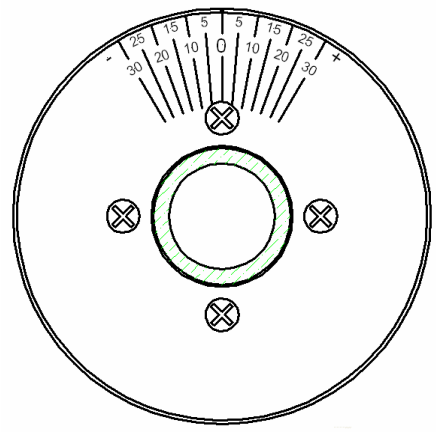


Figure 3-1 LNB rotation during polarization adjustment

Select the "Signal Strength" display of the satellite receiver (refer to the satellite receiver manual). While monitoring the receivers' signal strength, adjust polarization up or down in one (or two) degree increments, then observe the receivers' signal strength for 10-15 seconds to evaluate the change. If an improvement is noted, continue small adjustments in the same direction until the highest signal strength is obtained. If the adjustment causes a decrease, adjust polarization in the opposite direction to increase the signal strength. When the polarization of the antenna is optimum, tighten the set screws and re-install the radome top.

3.5.2. Setting polarization for a different satellite (changing satellites)

When changing from one satellite to another you may need to adjust the polarization of the LNB to be able to acquire the satellite you want to switch to. This will only be required if the difference in polarization angle of the two satellites is greater than ten degrees.

1. Assure that you have optimized the polarization for the satellite you are presently on.
2. Compare the longitude of the satellite you are presently on to the longitude of the satellite you will be switching to. Note the amount & direction of the difference in longitude position of the two satellites. Adjust the polarization 10 degrees for each 10 degrees of longitude difference between the two satellites. If the satellite you are switching to is further East from the present satellite you will need to adjust polarization DOWN the appropriate number of degrees. If the satellite you are switching to is West from the present satellite you will need to adjust polarization UP the appropriate number of degrees. Examples:

   Presently optimized on Astra 1 at 19.2E and want to switch to Hotbird at 13.0E. Difference is less than 10 degrees, so no adjustment is necessary before searching for the next satellite (step 4).

   Presently optimized on Astra 1 at 19.2E and want to switch to Astra 2 at 28.2E. Difference is about 10 degrees East. You need to rotate the LNB (POL DOWN) 10 degrees and then search for the next satellite (steps 3 & 4).

   Presently optimized on Astra 1 at 19.2E and want to switch to Thor 1 at 0.8W. Difference is about 20 degrees West. You need to rotate the LNB (POL UP) 20 degrees and then search for the next satellite (steps 3 & 4).
3. Adjust polarization UP/DOWN the amount determined in step 2.
4. Press **NEXT** to search for the next satellite. If the next satellite found is not the desired satellite, press **NEXT** to continue searching. Repeat searching until the desired satellite is found. Allow the antenna to track the satellite for about two minutes.
5. Optimize polarization while on the new satellite using the procedure above.

If you will be changing satellites periodically to view different programming, note the polarization for each of the satellites you will be using. Setting the polarization before searching for the next satellite will help shorten the search process.

3.5.3. Setting polarization when you have changed geographic areas

If the boat is travelling a great distance it is recommended that you optimize the polarization using the above procedure after each 10 degree latitude or longitude change. If you have changed latitude and longitude by a significant geographic distance, while the antenna has been tracking a different satellite, it may be necessary to adjust the polarization to find the desired satellite.

If you are able to find (and identify) a satellite, optimize the polarization and follow the procedure above to change from the satellite you are presently on to the one you desire to be using. If you are not able to find any satellites, adjust polarization up or down 10 degrees and press **NEXT** to search for a (next) satellite signal. Continue adjusting polarization and searching, until a satellite signal is found and you can then change from the satellite you are presently on to the one you desire to be using.

If after all polarization settings have been tried and no satellite signal can be found, refer to the Troubleshooting section of this manual.

4. Coastal 14E Technical Specifications

4.1. Installed Weight

Total Weight (dry):	25 lbs. (11.3 kg)

4.2. Radome

Diameter	16.5 inch (41.9cm)
Height	18 inch (45.7cm)
Mounting (Base to Deck)	(Qty 4) ¼-20 fasteners
Mounting (Top to Base)	(Qty 3) 8/32 x 5/8" Flat Head screws
Wind:	Withstand relative average winds up to 100 MPH from any direction.
Ingress Protection Rating	All Sea Tel radomes have an IP rating of 56

4.3. Antenna

Type	Spun Aluminum reflector
Size	14.5 inch (36.8cm)
Feed	Cassegrain feed with center focus splash plate
Polarization	(Manual) Linear ONLY
Min EIRP	50 dB
LNB	Universal Single Flange Linear

4.4. Stabilized Pedestal

Type	Two-axis positioning (Elevation & Azimuth)
Stabilization	3 Dimensional Velocity mode Servo
Stab Accuracy	1.5 degrees MAX, 0.7 degrees RMS in presence of specified ship motions.
Level, Train Motors	Size 23 DC Step Motors with PWM Microstep drive
Inertial Reference	3 single axis Solid State Silicon Rate Sensors
Gravity Reference	Two Axis Fluid Tilt Sensor
Azimuth Reference	Closed Loop Tracking on Satellite signal
Stabilization rates	
Roll/Pitch	> 25 degrees / second
AZ./Turn	> 15 degrees / second
Range of Motion	
Elevation	15 to 75 degrees
Azimuth	Unlimited
Polarization	+/- 90 degrees

Maximum Ship Motion	
Roll	+/- 25 degrees
Pitch	+/- 15 degrees
Elevation Pointing	
+/- 15 degrees of Roll	35 to 60 degrees
+/- 25 degrees of Roll	40 to 50 degrees

4.5. Universal Single Flange Linear

Sea Tel Part Number:	127113
Type:	Single "f" connector output
LNB Manufacturer:	Inverto, IDLP-SFLANGE, but may vary

	Low Band (22Khz Tone On)	**High Band** (22Khz Tone OFF)
RF Frequencies:	10.7 -11.7Ghz	11.7 – 12.75Ghz
IF Frequency:	9.75Ghz	10.6Ghz
LO Frequency:	950 - 1950Mhz	1100 – 2150Mhz

Noise Figure:	.3 dB max.
Polarization modes:	Linear Only
Polarization control:	Voltage switched in pedestal (as sensed by ACP)
	18VDC (HORZ) or 13VDC (VERT)
Band Control	Tone switched in pedestal (as sensed by ACP)
	22Khz Tone On = High Band or 22Khz Tone Off = Low Band

4.6. Pedestal Control Unit

Size	6 x 8.5 x 2.125 inches (15.24 x 21.6 x 5.4 cm)
Features	Fully integrated controller, sensors, motor drivers, and RF signal Tracking Receiver.
Connectors	
Below Decks Interface	15 pin D-Sub
Elevation/Azimuth Drive Motors	9 pin D-Sub
Polarization Motor	9 pin D-Sub ****Not Used in Coastal 14E****
Elevation Encoder	9 pin D-Sub
RF Signal Input	Type F
RF Signal Output	Type F
HD 110W Converter Enable	Type F ****Not Used in Coastal 14E****
GPS Antenna Input	BNC

4.6.1. DVB Compliant Tracking Receiver

Internal Satellite Identification Receiver	
Tuning range	950 to 2150 MHz in 1 MHz increments in DVB Mode.
Input RF Level	-85 to -25 dBm typical

Output RF Level	Input level +/- 1 dB typical
Sensitivity	30 mV / dB typical
Bandwidth	Selectable 7.5-30 MHz in DVB Mode,
Polarity switching	13 VDC output to select **Vertical** polarity.
	18 VDC to output select **Horizontal** polarity
Band Switching:	22kHz continuous tone output to select **High** band, No tone to select **Low** band.
Satellite ID	Network ID for DVB signals. QPSK demodulator and FEC decoder lock for DSS, or DVB without NID (forced NID).
QPSK Demodulator	3000 to 30000 baud (ksps)
FEC Decoder	1/2, 2/3, 3/4, 5/6, 6/7, 7/8, or Automatic.
Pipeline Decoder	DVB or DSS compatible.

4.7. Power Requirements

Voltage	12-24 VDC normal operating range
	****NOTE: Panel Brightness parameter must be set below 100 when using a 24VDC supply****
Current	3.0 Amps nominal @ 13.8 VDC
Transient Protection	
Load Dump	60 volts
Inductive coupling	+/- 200v @ 1 uSec
Reverse Battery	Indefinite

4.8. *Environmental*

Temperature	-20 to +55 degrees C.
Humidity	Up to l00% @ 40 degrees C.
Rain	Up to 4 inches per hour. Degraded RF performance when the radome surface is wet.
Wind	Up to 100 MPH from any direction.
Corrosion	Parts are corrosion resistant or treated to endure effects of salt air and salt spray.
Ship Motions for specified pointing accuracy	
Roll	+/-20 degrees with 8-12 sec periods
Pitch	+/-10 degrees with 6-12 sec periods
Yaw	+/-8 degrees with 15 to 20 sec periods
Turning rate	Up to 12 deg/sec

.

4.9. *Antenna Control Panel*

Size:	2.08 x 4.93 x 2.43 inches (5.28 x 12.52 x 6.17 cm)
Features:	Liquid Crystal Display (16 Character x 2 Line) with Adjustable Backlight , 2 indicator LED's (Unwrap and Tracking),BDE FSK Multiplexer, 4 Amp inline fuse, IF Output Port with built-in Voltage and 22Khz Continuous Tone Detector Circuits.
Connectors:	
Above Decks Interface	Type "F" Connector
Receiver Decks Interface	Type "F" Connector
Antenna M&C Interface	9 pin D-Sub (F)
DC Power Interface	2 Position Screw Terminal
Fuse Holder	Mini Blade Type
Buttons:	POWER, NEXT, SAVE, UP, & DOWN

5. Computer Interface

A computer may be connected to the antenna control panel to allow you to provide access to ALL the parameter settings of the Coastal Series antenna and to perform Software Uploads to the Pedestal Control Unit. The commands to set the parameters in the Coastal Series PCU are summarized below.

Changing the parameters for the desired satellites may be easily done using the computer interface. You may consult the Lyngsat satellite web site at www.lyngsat.com for detailed tuning frequencies and network ID information (Note hold your cursor over the Ku band transponder frequency to show the L-band IF tuning value in the lower left status bar display based on the most popular Local Oscillator frequencies). If you LNB uses a different Local Oscillator frequency, you will have to calculate the IF to tune to (RF – LO = IF).

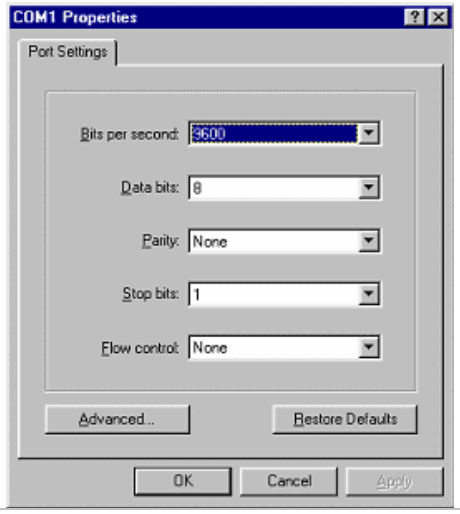
5.1. Connecting the computer

1 Connect the computers COM port to the Receiver Interface port on the rear of the Display Antenna Control Panel using a computer "DB-9 Serial Extension Cable" (male-female) available in most computer stores.

2 Use Hyper Terminal, or another communication program, to communicate with the Series 98 system. If you have previously set up Hyper Terminal skip to step 7 below.

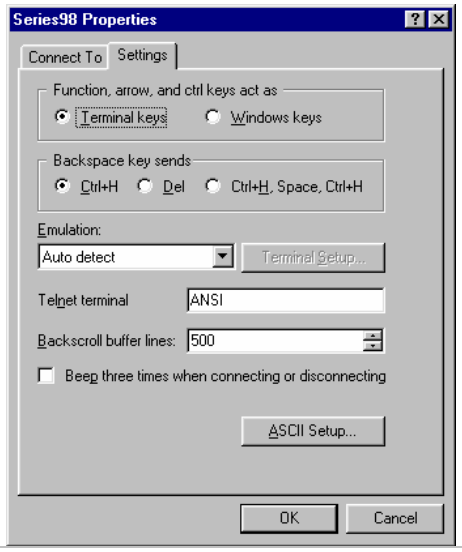
3 COM port settings should be set to 9600 bits per second, 8 data bits, No parity, 1 stop bit.

4 Assure that the Flow Control is set to "None".

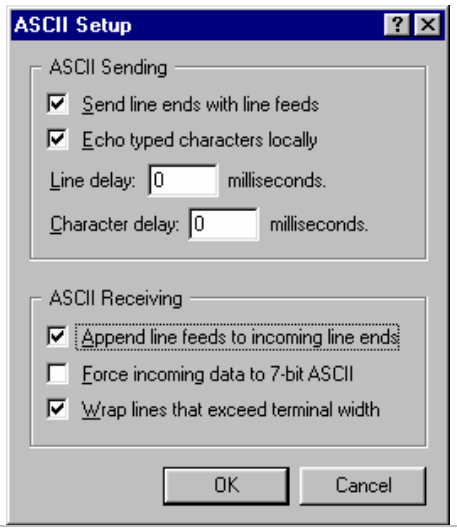


5 Open Hyper Terminal and select the settings tab.

6 Click on ASCII Setup to configure Hyper Terminal.



7 Check "Send line ends with line feeds", "Echo typed characters locally" and "Append line feeds to incoming line ends". Click OK.

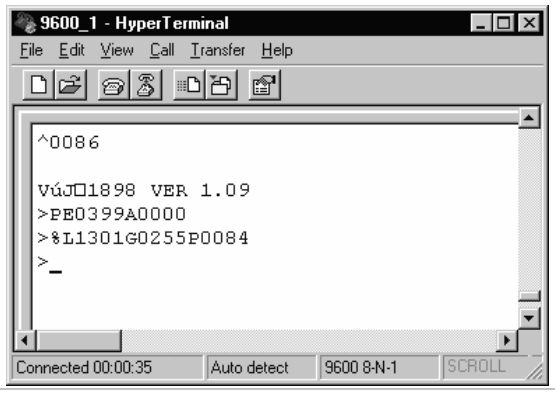


8 Type **^0086** and hit **ENTER.**

9 Refer to the command information below to communicate with the antenna system. *The Display Antenna Control Panel will be locked while you are connected to the computer.*

10 When you are finished, close the terminal program and disconnect the computer from the Display Antenna Control Panel.

11 At the Display Antenna Control Panel, Turn power **OFF.** Wait 10 seconds and turn power **ON.**



6. Drawings

The following drawings are included with this manual for installation and maintenance reference.

6.1. Coastal 14 Drawings

Drawing	Title	
127108	**System, Coastal 14E**	**6-3**
127110	**System Block Diagram**	**6-5**
127111	**Antenna Schematic**	**6-7**
127109	**General Assembly**	**6-8**
127112	**Antenna Assembly**	**6-11**
125822_C	**Radome Assembly**	**6-13**
126357_A1	**Installation Arrangement**	**6-15**
127247	**Packing List Coastal 14**	**6-16**

126355_A1 Installation Template (provided separately)

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SINGLE LEVEL MFG BILL OF MATERIAL

FIND	QTY	PART NO	REV	DESCRIPTION	REFERENCE DESIGNATOR
1	1 EA	127109-1	A	GENERAL ASS'Y, COASTAL 14E	
2	1 EA	125822	D	RADOME ASS'Y, COASTAL 14	
3	1 EA	126059	A	ANTENNA CONTROL PANEL ASS'Y, TACP	
4	1 EA	113480-1	C1	CABLE ASS'Y, RF, RG6, 50 FT.	
5	1 EA	111115-6	B	CABLE ASS'Y, F(M)-F(M), 6 FT.	
6	1 EA	126305	A	HARNESS ASS'Y, DC POWER, COASTAL 1	
8	1 EA	127242		CUSTOMER DOC PACKET, COASTAL 14E	
9	1 EA	110567-11		ADAPTER, N(M)-F(F), STRAIGHT	
10	1 EA	127247	A	PACKING LIST, COASTAL 14E	
11	1 EA	126594-1	B	GA INSTALL, COASTAL 14	

Sea Tel

SYSTEM, COASTAL 14E

PROD FAMILY	EFF. DATE	SHT 1 OF 1	DRAWING NUMBER	REV
SERIES 98	22-Jan-08		**127108-1**	**X1**

127110	System Block Diagram

127111	Antenna Schematic

127109	General Assembly

127112	Antenna Assembly

125822_C	Radome Assembly

126357_A1	Installation Arrangement

127247	Packing List Coastal 14